

The claimed invention would not have been obvious in view of Mattis and Graham

Claims 1-18 describe methods and apparatus for responding to incoming request messages by converting each incoming request message into an incoming canonical request message expressed in a standard form and, if the resulting incoming canonical request message matches a previously received and stored canonical message, the stored response previously transmitted in response to the previously received request message is returned to the requester.

The Examiner concedes that the principal reference, Mattis, does not disclose converting an incoming request message into a canonical request message expressed in predetermined standard form as claimed. The Examiner contends, however, that the secondary reference, Graham, teaches converting incoming messages (service advertisement requests) into canonical form before they are matched against the stored advertisements, and therefore the Examiner concludes that it would have been obvious to modify Mattis' cache by converting incoming messages into standard form in order to allow different protocols to work in harmony and thereby increasing interoperability.

Applicants again submit that one skilled in the art would have no reason to convert the incoming requests (resource names and URLs) which Mattis processes into a canonical form before they are stored. In the last response, applicants pointed out that Graham's protocol brokering mechanism is not concerned with caching and does not compare incoming requests with prior requests, but instead compares requests with stored data (advertising). Graham therefore does not determine, and does not need to determine, if an incoming request matches a previously received stored request. Indeed, Graham does not store and does not need to store previously received requests. There is thus no teaching in Graham of, or any teaching of any reason for, converting an incoming request into canonical form for comparison with a prior request, and modifying Mattis in view of Graham would thus not yield the combination claimed by Applicants.

In the last response, applicants also pointed out that one skilled in the art would not be motivated to use Graham's protocol brokering scheme in the Mattis system because all incoming requests in Mattis are resource names or URLs that arrive under HTTP. Hence Mattis has no need for a system that serves as a broker between different protocols. In his "Response to

Arguments" on page 6 of the outstandingaction, Examiner stated that applicants were incorrect in stating that incoming names or URLs arrive under a single protocol HTTP because Mattis states that a FTP server is used. In this regard, the Examiner's attention is directed to Mattis' explanation at col.8, line 48 that the FTP server 40 delivers files over an HTTP connection. The Examiner's attention is still further directed to Section 1.1 of the HTTP specification, *Hypertext Transfer Protocol--HTTP/1.0*, RFC 1945 (May, 1996 available at www.ietf.org/rfc/rfc1945.txt) which states that, in addition to being used to implement the World Wide Web, HTTP is "used as a generic protocol for communication between user agents and proxies/gateways to other Internet protocols, such as SMTP [12], NNTP [11], FTP [14], Gopher [1], and WAIS [8]..." Accordingly, the Mattis cache as disclosed works only with the HTTP request-response protocol, and the only requests that the Mattis caching system processes are HTTP requests which identify the cached data objects by resource name or URL.

The Examiner furthermore suggests that Mattis and Graham essentially provide the same service in the sense that "*both receive a request from a client, convert the request into a format with which the system can utilize (in Mattis, the name is hashed to a value; in Graham the request is formatted into an XML canonical representation), they look into a registry to find a matching entity, and then an object is returned to the client when a match is found (Mattis returns the cached object, Graham brokers a communication between the client and the service provider).*"

Applicant submits that Mattis and Graham provide very different services and nothing but a hindsight effort to come up with the subject matter which applicants' claim would motivate one skilled in the art to combine their teachings. Graham provides a mechanism for brokering requests and responses among many different protocols. The Mattis system is a specific optimized system for caching redundant content that is identical, but has different names, while at the same time efficiently caching variants of content having the same name. There is no suggestion whatsoever in either of these references their teachings could or should be combined in a way that would yield the invention claimed by applicants.

The Examiner has not responded to applicants' arguments concerning the rejections based on Schroeder

In the last response, applicants pointed out why the Examiner's reliance on the third reference, Schroeder, in his rejection of claims 2, 6-9, 11 and 15-18 was improper. All of these

claims further specify that all or part of the request messages which are translated into canonical form are expressed in XML. As pointed out in applicants' specification, data requests expressed in XML may be logically identical but have different content; for example, logically identical XML request messages may have different line ending characters or include different whitespace characters which change the form but not the logical meaning of the request. Applicants' claimed technique of converting incoming XML requests into canonical form for storage and comparison permits logically identical requests to be identified even though they don't have identical content as received. Nothing in any of the cited references discloses or suggests doing this.

As the Examiner concedes in Section 8 of the final rejection, neither Mattis nor Graham discloses that a portion of the incoming request message be expressed in XML language or that it should be translated into a standard canonical XML form. Neither the caching system described by Mattis nor the protocol broker taught by Graham deal with the special problems associated with caching XML requests.

The Examiner notes that "*Schroeder discloses an incoming data object in XML language that is translated into a standard canonical XML form.*" But, as applicants pointed out in the last response, the cited passage of Schroeder at paragraphs [0048] and [0049] does not deal with caching, but instead with "normalizing" received XML data objects (not requests) by passing them through standard XSL transforms. There is no suggestion in the cited passage of Schroeder that these "data objects" are requests or that, once "normalized" that they are stored or compared with previously stored prior requests. In short, there is nothing in the cited passage of Schroeder that suggests that incoming requests should be placed in canonical form so that they can be compared with previously stored canonical requests to identify prior requests that are logically identical to the incoming request as claimed.